REMARKS

Reconsideration and allowance of the above identified patent application are hereby requested. Claims 1-22, 26-44, and 47-69 are now in the application with claims 1, 18, 26, and 42-44 being independent.

Rejection Under 35 U.S.C. §102

Claims 1-5, 18, 23, 26-29, 42-44, and 47-49 stand rejected under 35 U.S.C. §102(e) as allegedly being anticipated by U.S. Patent Application No. 2003/0077000 to Blinn et al. The Office's contentions are respectfully traversed.

Claim 1 recites (underlining added for emphasis) "...computing a filter for applying to the first image, including computing a spatially quantized representation of the filter wherein a degree of spatial quantization of the filter depends on one or more factors including a measure of scale relating the first sample grid and a desired sample grid; and storing the spatially quantized representation of the filter in a data structure comprising a location array that includes a plurality of elements representing fractional pixel locations based on a spatial quantization factor, wherein each element of the location array points to a sample array of filter values."

As exemplified in the specification, the elements included in the location array point to samples of the filter. For example, the specification (para. [065]) discloses (underlining added for emphasis)...

> Referring to FIG. 4C, a data structure that holds the $K \cdot N \cdot M$ values of the filter $g(x) = f(x / K) / K$ includes an array 450 of M elements, each of which points to an array 460 of $[K \cdot N]$ elements, where as discussed above $K \cdot N$ corresponds to the

> length of the filter in units of pixels. Each of these arrays holds samples of the filter with unit pixel spacing, but with different fractional pixel location of the center of the filter.

Blinn et al. fail to disclose the claimed subject matter, such as exemplified above.

The Office (Action of September 5, 2007 at pages 2-3) asserts that Blinn et al. teach (underlining added for emphasis) "storing the spatially quantized representation of the filter in a data structure comprising a location array that includes a plurality of elements representing fractional pixel locations based on a spatial quantization factor (weight of filter kernel), wherein each element of the location array points to a sample array of filter values (Fig. 3, para. [0040] – [0043], abstract)."

The Office (*Id.* at page 13) further asserts that (underlining added for emphasis) "The prior art of Blinn et al. is using a filter kernel that is calculating output using fractional pixel locations (weighted original pixels) based on weight (spatial quantization factor) (Blinn Fig. 3 and para. [0041] – [0043])." Blinn et al. fail to disclose the claimed subject matter.

Blinn et al. do not teach storing a spatially quantized representation of the filter in a data structure. The Office cites to FIG. 3, which Blinn et al. describe as (underlining added for emphasis) "a diagram generally illustrating a conventional technique for performing image rescaling." FIGS. 3*a-d* of Blinn et al. do not disclose, teach, or suggest storing the spatially quantized representation of the filter in a data structure, as is claimed. Rather, FIGS. 3*a-d* disclose sampling a waveform to generate an image and then rescaling that image using a filter. Capturing and rescaling an image is not equivalent to storing a spatially quantized representation of a filter in a data structure.

Further, paragraphs 0040-0043 of Blinn et al., to which the Office also cites, contain narrative associated with FIGS. 3*a-d* and thus also relate to applying a filter kernel to a source image to generate a rescaled output image. The cited portion of Blinn et al. does not, however, relate to computing a spatially quantized representation of a filter. For example, Blinn et al. (para. [0042] disclose (underlining added for emphasis)...

> As the next step in the rescaling process, a filter kernel is mapped to the sampled image 124 by applying the inverse of the calculated transform (T^{-1}) to the sampled image 124.

Thus, the cited portion of Blinn et al. discloses that a filter kernel is mapped to the sampled image. However, mapping a filter kernel to an image is not equivalent to computing a spatially quantized representation of the filter and storing the spatially quantized representation of the filter in a data structure, as is claimed. Rather, mapping a filter kernel to an image relates to applying an existing filter kernel to an image.

The Abstract of Blinn et al., to which the Office further cites, discloses computing an optimal filter kernel. For example, Blinn et al. (Abstract) disclose (underlining added for emphasis)...

> An optimal filter kernel, formed by convolving a box filter with a filter of fixed integer width and unity area, is used to perform image resizing and reconstruction. The optimal filter has forced zeros at locations along a frequency scale corresponding to the reciprocal of the spacing of one or more pixels that comprise a source image to be resized. When a rescale value for a source image is selected, the optimal filter kernel is computed, mapped to the source image, and centered upon a location within the source image corresponding to the position of an output pixel to be generated.

Thus, Blinn et al. teach computing an optimal filter kernel by convolving a box filter with a filter of fixed integer width and unity area. Blinn et al. do not, however, disclose, teach, or suggest storing a spatially quantized representation of a filter in a data structure comprising a location array, as is claimed. Rather, Blinn et al. are silent as to storing the computed optimal filter kernel.

Blinn et al. (para. [0042]) also disclose that (underlining added for emphasis) "A filter kernel is an array of values that define the characteristics of the filter to be used for processing the pixels of the sampled image...." Nonetheless, Blinn et al. do not disclose that the array of values comprises a location array. Further, Blinn et al. do not disclose a location array that includes a plurality of elements representing fractional pixel locations based on a spatial quantization factor, wherein each element of the location array points to a sample array of filter values, as is claimed. Accordingly, Blinn et al. fail to disclose, teach, or suggest the claimed location array of which each element points to a sample array of filter values.

Still, the Office (Action of September 5, 2007 at page 13) asserts that (underlining added for emphasis)...

> The prior art of Blinn et al. is using filter kernel that is calculating output using fractional pixel locations (weighted original pixels) based on weight (spatial quantization factor) (Blinn Fig. 3 and para [0041]-[0043]).

However, the Office's characterization of Blinn et al. is incorrect. The Office asserts that Blinn et al. disclose using fractional pixel locations in the form of weighted original pixels. Blinn et al., however, disclose using actual pixel locations – not fractional pixel locations – that appear under the filter. For example, Blinn et al. (para. [0043]) disclose (underlining added for emphasis)...

> The interpolation procedure is performed by multiplying the intensity values of the pixels that lie underneath the kernel with the weight, or height, of the kernel at each respective position of the pixels. For example, in FIG. 3*d*, the filter kernel 136 is centered such that four pixels 138 – each containing color intensity information P1 thru P4 – lie underneath the kernel. The output pixel value 139 is calculated by multiplying the pixel values P1 thru P4 with the weight of the filter kernel $K(X_{P1})$ thru $K(X_{P2})$, where X is the respective position of the pixels underneath the kernel.

Thus, Blinn et al. do not disclose the use of fractional pixel locations. To the contrary, Blinn et al. teach that the pixel value at a pixel location is multiplied by the corresponding weight (or height) of the filter. As such, Blinn et al. do not disclose determining or otherwise using a fractional pixel location.

Further, assuming arguendo that Blinn et al. did disclose using a filter kernel that calculates output using fractional pixel locations, Blinn et al. still would not disclose storing a spatially quantized representation of the filter in a data structure comprising a location array that includes a plurality of elements representing fractional pixel locations, as is claimed. Using fractional pixel locations to calculate an output value is not equivalent to storing a representation of a filter that includes a plurality of elements representing fractional pixel locations. For example, Blinn et al. (para. [0043]) clearly disclose that the output value, which corresponds to an actual pixel location in the output image, is computed and "...placed into a memory location allocated for the output image." Blinn et al. do not disclose, teach, or suggest storing an array that includes a plurality of elements representing fractional pixel locations. Moreover, Blinn et al. do not disclose, teach, or suggest a spatially quantized representation of a filter that includes such an array.

Accordingly, Blinn et al. do not disclose, teach, or suggest storing the spatially quantized representation of the filter in a data structure comprising a location array that includes a plurality of elements representing fractional pixel locations based on a spatial quantization factor, wherein each element of the location array points to a sample array of filter values, as is claimed.

For at least these reasons, claim 1 is allowable over Blinn et al. Claims 2-17 depend from claim 1 and are therefore allowable for at least the reasons discussed with respect to claim 1. Claims 26 and 42 contain subject matter similar to that of claim 1. Thus, claims 26 and 42 are allowable for at least the reasons discussed with respect to claim 1. Further, claims 27-41 depend from claim 26 and claims 47-61 depend from claim 42. Therefore, claims 27-41 and claims 47-61 are allowable based at least on claims 26 and 42, respectively.

Claim 5 recites (underlining added for emphasis) "The method of claim 4 wherein computing the spatially quantized representation of the filter includes computing values of the filter each associated with one of a number of equal spatial domains of the filter."

The Office (Action of September 5, 2007 at page 3) asserts that "...Blinn et al. teaches computing the spatially quantized representation of the filter includes computing values of the filter each associated with on [sic] of a number of equal spatial domains of the filter (Fig. 3, para. [0043])." Blinn et al. fail to disclose the claimed subject matter.

FIGS. 3*a-d* of Blinn et al. do not disclose, teach, or suggest computing values of a filter each associated with one of a number of equal spatial domains of the filter. Rather, FIGS. 3*a-d* disclose sampling a waveform to generate an image and then rescaling that image using a filter. Further, paragraph [0043] of Blinn et al. relates to "...the process of pixel interpolation, the final

step of the resealing process." For example, Blinn et al. disclose (underlining added for emphasis)...

> The output pixel value 139 is calculated by multiplying the pixel values P1 thru P4 with the weight of the filter kernel $K(X_{P1})$ thru $K(X_{P2})$, where X is the respective position of the pixels underneath the kernel. These values are then summed to reveal the total output pixel value 139, and placed into a memory location allocated for the output image.

Thus, the cited portion of Blinn et al. teaches computing output pixel values corresponding to an output image. Computing values corresponding to an image is not equivalent to computing values of the filter. Accordingly, Blinn et al. do not disclose that computing the spatially quantized representation of the filter includes computing values of the filter each associated with one of a number of equal spatial domains of the filter, as is claimed.

For at least these reasons, claim 5 also is allowable over Blinn et al. based on its own merits. Claims 29 and 49 include subject matter similar to that of claim 5, and are thus allowable for at least the reasons discussed with respect to claim 5.

Claim 18 recites (underlining added for emphasis) "...computing a filter for applying to the first image, including selecting characteristics of the filter according to the determined measure of scale and computing a spatially quantized representation of the filter, wherein a degree of spatial quantization of the filter depends on the determined measure of scale ; and storing the spatially quantized representation of the filter in a data structure comprising a location array that includes a plurality of elements representing fractional pixel locations based on a spatial quantization factor, wherein each element of the location array points to a sample array of filter values."

As discussed above with respect to claim 1, Blinn et al. do not disclose, teach, or suggest storing a spatially quantized representation of a filter in a data structure comprising a location array. Also as discussed above with respect to claim 1, Blinn et al. do not disclose a location array that includes a plurality of elements representing fractional pixel locations based on a spatial quantization factor, wherein each element of the location array points to a sample array of filter values.

Nonetheless, the Office (Action of September 5, 2007 at page 3) asserts that Blinn et al. disclose each and every element of claim 18. In setting forth the rejection of claim 18, the Office (*Id.*) states "With respect to claim 18, please refer to rejection for claim 3." However, the rejection of claim 3 (*Id.*) identifies only FIG. 3 and para. [0040].

Blinn et al. (para. [0040]) disclose using a transform (T) to create a digital representation of a source object. Further, Blinn et al. (*Id.*) disclose that FIGS. 3*a-d* illustrate a typical rescale operation. As discussed above with respect to claim 1, creating a digital representation of an object and rescaling a digital representation are not equivalent to storing a spatially quantized representation of a filter in a data structure comprising a location array. Accordingly, Blinn et al. fail to disclose, teach, or suggest storing the spatially quantized representation of the filter in a data structure comprising a location array that includes a plurality of elements representing fractional pixel locations based on a spatial quantization factor, wherein each element of the location array points to a sample array of filter values, as is claimed.

For at least these reasons, claim 18 is allowable over Blinn et al. Claims 19-22 depend from claim 18 and are therefore allowable for at least the reasons discussed with respect to claim 18. Claims 43 and 44 contain subject matter similar to that of claim 18. Thus, claims 43 and 44

are allowable for at least the reasons discussed with respect to claim 18. Further, claims 62-65 depend from claim 43 and claims 66-69 depend from claim 44. Therefore, claims 62-65 and claims 66-69 are allowable based at least on claims 43 and 44, respectively.

Additionally, the Office's explanation of how the Blinn et al. reference satisfies the elements of the pending claims – including claims 1 and 18 – is insufficient. MPEP §2271 Final Action states (emphasis added)...

> In making the final rejection, all outstanding grounds of rejection of record should be carefully reviewed and any grounds or rejection relied on should be reiterated. The grounds of rejection must (in the final rejection) be clearly developed to such an extent that the patent owner may readily judge the advisability of an appeal. However, where a single previous Office action contains a complete statement of a ground of rejection, the final rejection may refer to such a statement and also should include a rebuttal of any arguments raised in the patent owner's response.

The Office (Action of September 5, 2007 at pages 2-3) asserts that Blinn et al. teach "storing the spatially quantized representation of the filter in a data structure comprising a location array that includes a plurality of elements representing fractional pixel locations based on a spatial quantization factor, wherein each element of the location array points to a sample array of filter values", but supports this assertion with only a single parenthetical "(weight of filter kernel)" and a cite to Blinn et al. Accordingly, the Office's grounds of rejection are not clearly developed. Moreover, the Office's rebuttal of arguments raised (*Id.* at page 13) consists of a single sentence directed to applying a filter kernel to an image to calculate an output. The Office's rebuttal does not address storing a spatially quantized representation of a filter in a data structure. Therefore, withdrawal of the finality of the Office action is respectfully requested.

Rejection Under 35 U.S.C. §103

Claims 6-8, 19, 30-32, 50-52, 62, and 66 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Blinn et al. in view of U.S. Patent No. 6,681,059 to Thompson et al. Further, claims 9-11, 24, 33-35, and 53-55 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Blinn et al. in view of U.S. Patent Application No. 2004/0057634 to Mutoh. Additionally, claims 12-13, 36-37, and 56-57 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Blinn et al. in view of Mutoh and in further view of U.S. Patent No. 6,111,566 to Chiba et al. Also, claims 14-16, 38-40, and 58-60 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Blinn et al. Further, claims 17, 41, and 61 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Blinn et al. in view of U.S. Patent Application No. 2003/0058216 to Lacroix et al. Additionally, claims 20-22, 63-65, and 67-69 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Blinn et al. in view of Mutoh and in further view of U.S. Patent No. 6,886,034 to Blumberg. The Office's contentions are respectfully traversed.

Claim 14 recites (underlining added for emphasis) "The method of claim 1 wherein the degree of spatial quantization of the filter depends on factors that further include characteristics of a computation device for performing the resampling."

The Office (Action of September 5, 2007 at page 9) acknowledges that Blinn et al. do not teach the claimed subject matter, but asserts that (underlining added for emphasis) "When a software is made, it always depend on characteristics of a computation device include a memory size. It should have minimum system requirement. At the time of the invention it would have been obvious to a person of ordinary skill in the art to create filter depend on characteristics of a

computation device in method of Blinn et al." The Office mischaracterizes the subject matter of claim 14, and Blinn et al. do not teach the claimed subject matter.

As recited in claims 1 and 14, the degree of spatial quantization of the filter depends on one or more factors including a measure of scale and characteristics of a computation device. That a software application, as the Office asserts, should have a minimum system requirement is immaterial. Ensuring that minimum system requirements are available for a software application does not disclose, teach, or suggest that a degree of spatial quantization of a filter depends on characteristics of a computation device. Thus, the general knowledge upon which the Office relies fails to cure the deficiencies of Blinn et al. that the Office has identified.

The Office also does not state that it is taking Official Notice regarding the degree of spatial quantization of the filter depending on factors that further include characteristics of a computation device for performing the resampling. Nonetheless, taking Official Notice with respect to claim 14 would be inappropriate because the subject matter is not capable of instant and unquestionable demonstration as being well-known. MPEP §2144.03 A. states (underlining added for emphasis):

> It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art. *In re Ahlert*, 424 F.2d at 1091, 165 USPQ at 420-21.

MPEP §2144.03 B also states:

> **If Official Notice Is Taken of a Fact, Unsupported by Documentary Evidence, the Technical Line of Reasoning Underlying a Decision To Take Such Notice Must Be Clear and Unmistakable**
>
> Ordinarily, there must be some form of evidence in the record to support an assertion of common knowledge. See *Lee*, 277 F.3d at 1344-45, 61 USPQ2d at 1434-35 (Fed. Cir. 2002); *Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697 (holding that general conclusions concerning what is "basic knowledge" or "common sense" to one of ordinary skill in the art without specific factual findings and some concrete evidence in the record to support these findings will not support an obviousness rejection).

Further, the Office does not provide an adequate technical line of reasoning, as required when taking Official Notice without documentary support. For example, the Office does not provide any support for the assertion that performing image processing without conflict with the computation device would have motivated a person of ordinary skill in the art to make the degree of spatial quantization of the filter depend on factors that include characteristics of a computation device for performing the resampling. The Office also does not indicate how this result would be achieved or that such a practice was well-known.

For at least these reasons, claim 14 is allowable based on its own merits. Claims 15-17 depend from claim 14 and are therefore allowable for at least the reasons discussed with respect to claim 14. Further, claims 38 and 58 include subject matter similar to that of claim 14. Thus, claims 38 and 58 are allowable for at least the reasons discussed with respect to claim 14. Additionally, claims 39-41 depend from claim 38 and claims 59-61 depend from claim 58. Therefore, claims 39-41 and claims 59-61 are allowable based at least on claims 38 and 58, respectively.

Claim 17 recites (underlining added for emphasis) "The method of claim 14 wherein the characteristics of the computational device include a processor characteristic." The Office (Action of September 5, 2007 at page 10) concedes that "Blinn et al. does not disclose expressly that the characteristics of the computational device include a processor characteristic." Nonetheless, the Office (*Id.*) appears to assert that Lacroix et al. teach the claimed subject matter and that it would have been obvious to combine the references. For example, the Office (*Id.*) states that (underlining added for emphasis) "The suggestion/motivation for doing so would have been that filter can be optimized for user (processing speed, image quality). Therefore, it would have been obvious to combine Chiba et al. with Blinn et al. and Mutoh to obtain the invention as specified in claim 17." It is presumed that the intended combination is Blinn et al. and Lacroix et al.

No motivation to combine Blinn et al. with Lacroix et al. can be found in the references. Blinn et al. (para. [0037]) disclose (underlining added for emphasis) "The present invention relates to a method and system for resizing images such that the unsightly effect of ripples does not occur in the generated output image." In contrast, Lacroix et al. (para. [0002]) disclose (underlining added for emphasis) "Embodiments of the present invention relate generally to haptic feedback interface devices used with a host computer system, and more particularly to data filters for haptic feedback interface devices." Lacroix et al. do not disclose, teach, or suggest image processing. As such, these references are wholly unrelated. Therefore, no suggestion to combine the references can be found in either Blinn et al. or Lacroix et al.

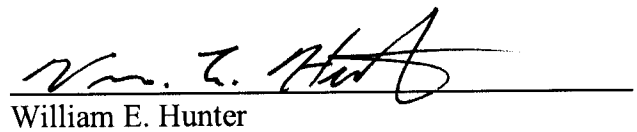
For at least these reasons, claim 17 is also allowable based on its own merits. Claims 41 and 61 include subject matter similar to that of claim 17, and therefore also are allowable for at least the same reasons.

Concluding Comments

The foregoing comments made with respect to the positions taken by the Examiner are not to be construed as acquiescence with other positions of the Examiner that have not been explicitly contested. Accordingly, the above arguments for patentability of a claim should not be construed as implying that there are not other valid reasons for patentability of that claim or other claims.

In view of the above remarks, claims 1-22, 26-44, and 47-69 should be in condition for allowance, and a formal notice of allowance is respectfully requested. Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,



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